Quantitative Land Cover Sample Site Protocol

Purpose

To measure Quantitative Land Cover Sample Sites and to collect the appropriate field data necessary for completing a land cover map made using either manual or unsupervised computer methods and for validating or assessing the accuracy of the land cover map

Overview

Quantitative field data is collected for a minimum of one Land Cover Sample.

Time

1-2 hours (excluding travel time)

Level

All

Frequency

Only collect data once for each Land Cover Sample Site.

Multiple Land Cover Sample Sites are desired. Over time, try to perform this protocol at least once for each major type of land cover within your GLOBE Study Site that is in MUC level 1 class 0, 1, or 4.

Key Concepts

- Land cover map
- Land cover classification
- GPS
- Field measurements
- Biometry

Skills

- *Locating* a field plot (Land Cover Sample)
- *Using* of GPS
- *Using* a compass, tubular densiometer, and clinometer
- *Determining* pace

Materials and Tools

- Natural color, hard-copy TM image of your 15 km x 15 km GLOBE Study Site
- False-color infrared, hard-copy TM image of your 15 km x 15 km GLOBE Study Site
- Compass
- Tubular densiometer
- Clinometer
- Tape measure
- GPS unit
- Land Cover/Biology Field Data Work Sheet
- Camera
- MUC classification system and definitions

Preparation

None

Prerequisites

Leaf Classification Learning Activity

Introduction

Quantitative training and validation data provides the most detailed ground reference data possible. These data are used in quantitatively assessing the accuracy of remotely sensed maps. Every school is expected to collect data from at least one Quantitative Land Cover Sample Site, but each school is encouraged to collect as many Quantitative Land Cover Samples as they can.

It is critical to scientists to have as much validation data as possible. It is also important to have validation data in every land cover class in the GLOBE study site. Obviously, this data collection should continue through time and can result in a large and very valuable database of validation sites.

Steps for Quantitative Data Collection

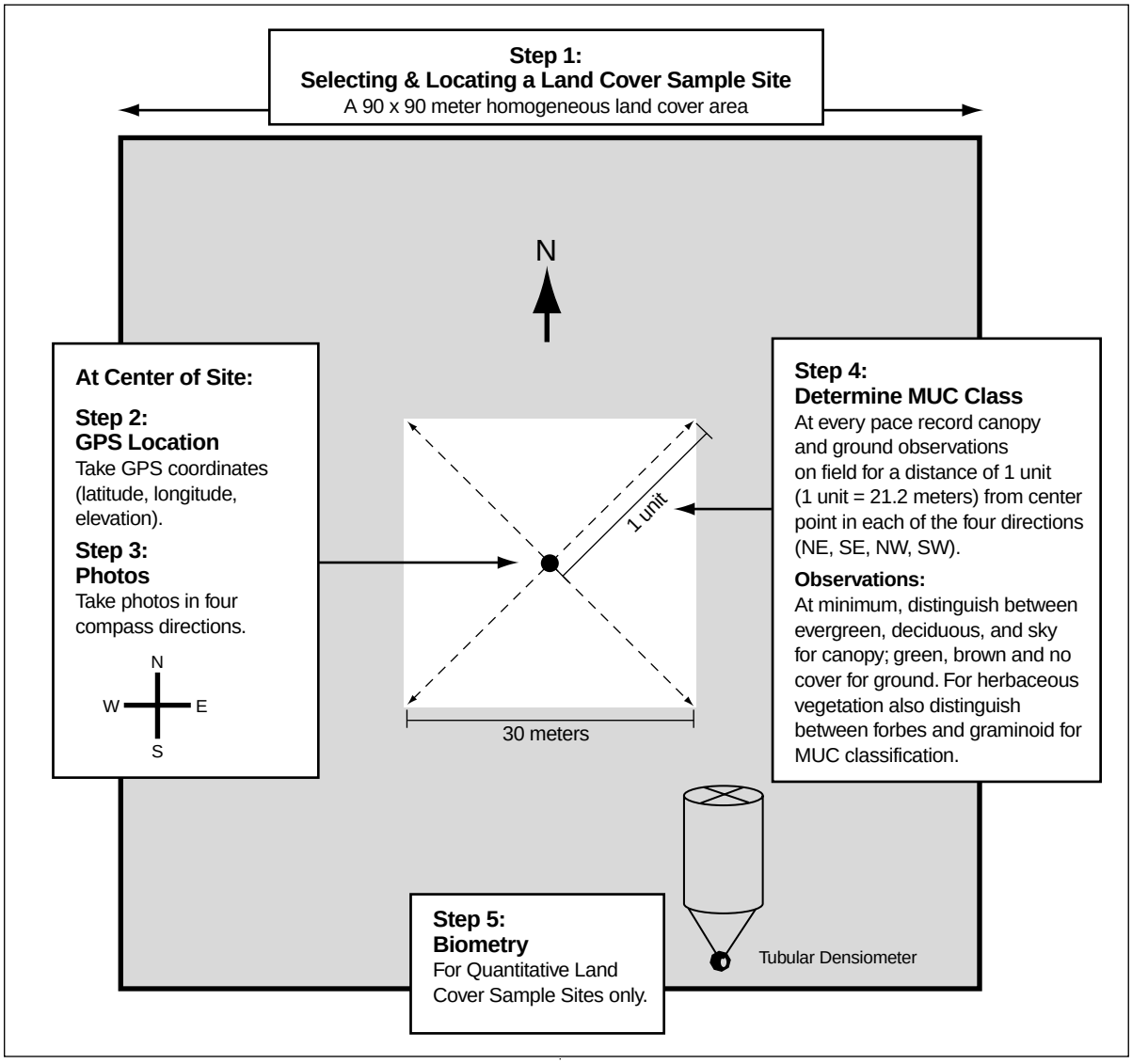
Step 1: Selecting and Locating a Quantitative Land Cover Sample Site

- ❑ Select a 90 m x 90 m area of homogeneous land cover using either the TM image of your GLOBE Study Site or your observations in the field.
- ❑ Using the TM image for orientation, locate and travel to the Land Cover Sample Site.
- ❑ Carefully mark the center of the site with a temporary marker.

Step 2: GPS Location

- ❑ Obtain a Global Positioning System (GPS) unit. If you do not have the GPS unit when establishing a Land Cover Sample, make sure the center is clearly marked and then come back and record coordinates when you obtain the GPS unit.
- ❑ At the center of the Land Cover Sample Site, record the GPS coordinates: longitude, latitude, and elevation. Refer to the *GPS Investigation*.
- ❑ Record on Land Cover/Biology Investigation Field Data Work Sheet.

Figure LAND-P-8: A Typical Quantitative Land Cover Sample Site



Step 3: Photos

- ❑ From the center of the Land Cover Sample, take a photo in each of the four cardinal directions (N, E, S, W).
- ❑ Have two sets of prints made, one for your school and one for GLOBE.
- ❑ Label each photo with Land Cover Sample Site name and directional aspect.

Step 4: Determine MUC Class

- ❑ Determine the land cover class following the MUC System Protocol.
- ❑ Record the MUC Class on Land Cover/ Biology Investigation Field Data Work Sheet.

Step 5: Biometry

- ❑ If the site is a forest or woodland (i.e. MUC classes 0 or 1), follow forest biometry protocols (height, circumference, dominant and sub-dominant species identification, crown closure, ground cover).
- ❑ If the site is covered by herbaceous vegetation (MUC class 4), follow the grassland biometry protocols.

Step 6: Report Data

- ❑ Review the data work sheets and record data in the school's permanent local data record.
- ❑ Report the data to GLOBE using the Quantitative Land Cover Sample Site Data Entry Sheet.
- ❑ Send copies of photos to the GLOBE Student Data Archive.